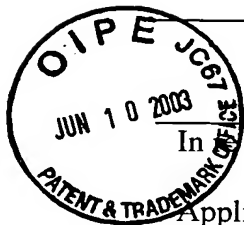


2814



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of: HU et al.

Attorney Docket No.: 01-377/LSIIP180

Application No.: 10/025,304

Examiner: TRINH, Hoa B.

Filed: December 19, 2001

Group: 2814

Title: METHOD OF PREVENTING RESIST
POISONING IN DUAL DAMASCENE
STRUCTURES

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on June 5, 2003 in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signed: _____

Sue Funchess
Sue Funchess

AMENDMENT A TRANSMITTAL

Mail Stop Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RECEIVED
JUN 12 2003
TECHNOLOGY CENTER 2800

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	20	MINUS	20	0	x 9 =	x 18 = \$-0-
Independent Claims	1	MINUS	3	0	x 42 =	x 84 = \$-0-
Multiple Dependent Claim Present and Fee Not Previously Paid					\$140.00	\$280.00
Total					\$	\$-0-

- ☐ Applicant(s) hereby petition for a _____ month extension(s) of time to respond to the aforementioned Office Action.
- ☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 12-2252 (Order No. 01-377).
- ☐ Enclosed is our Check No. _____ in the amount of \$_____ to cover the additional claim fee and/or extension of time fees.
- ☒ Please charge the required fees, or any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 12-2252 (Order No. 01-377).

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

Michael Lee

Michael Lee
Reg. No. 31,846

P.O. Box 778
Berkeley, CA 94704-0778



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: HU et al.

Attorney Docket No.: 01-377/LSI1P180

Application No.: 10/025,304

Examiner: TRINH, Hoa B.

Filed: December 19, 2001

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Title: METHOD OF PREVENTING RESIST
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Signed: _____

Sue Funchess

AMENDMENT A

Mail Stop Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated March 13, 2003, please consider the following:

Remarks/Arguments begin on page 2 of this paper.

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REMARKS/ARGUMENTS

Claims 1-20 are pending. Claims 6-9 and 17-20 are withdrawn from consideration.

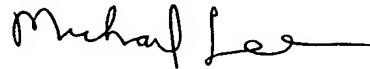
The Examiner rejected claims 1-3 and 10-14 under 35 U.S.C. 102(a), as being anticipated by Admitted prior art. The Examiner cited etch stop layer 212 as a poison barrier layer, which prevents resist poisoning. Page 8, lines 15-18, of the application states that a poison barrier layer is a layer that forms a barrier that blocks nitrogen, which has a base quality thus providing a nitrogen barrier that provides a resist poisoning barrier layer. Page 3, line 27, to page 4, line 20, of the application states that nitrogen poisoning causes unwanted photoresist residue 412, and that the nitrogen poisoning may come from nitrogen from the inorganic ARC and the silicon carbide barrier layer. Therefore the etch stop layer 212 does not provide a poison barrier layer to prevent photoresist poisoning, as recited in claim 1. Claims 2-3 and 10-14 are ultimately dependent on claim 1 and have additional features, when taken in the context of the claimed invention, further patentably distinguish the art of record. For at least these reasons claims 1-3 and 10-14 are not anticipated by the Admitted prior art.

The Examiner rejected claims 4-5 and 15-16 under 35 U.S.C. 103(a), as being unpatentable over Admitted prior art in view of Chooi. Claims 4-5 and 15-16 are ultimately dependent on claim 1. The Examiner stated that Chooi in col. 3, lines 10-25, teaches forming a method of forming a dual damascene with copper having the step of providing a barrier layer (silicon carbide) by plasma enhanced CVD which oxidizes the surface of the aperture of the dual damascene, thereby neutralizing the nitrogen on the surface. The applicant did not see anything in the cited section that discloses oxidizing the layer. In addition, claims 4 and 16 recite treating the surfaces of the first aperture. Neither the Admitted Prior art nor Chooi disclose using the CVD of Chooi to form a layer over the surfaces of the first aperture. For at least these reasons, claims 4-5 and 15-16 are not made obvious by the Admitted prior art in view of Chooi.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a

telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (831) 655-2300.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Michael Lee", with a long horizontal flourish extending to the right.

Michael Lee
Registration No. 31,846

P.O. Box 778
Berkeley, CA 94704-0778
(831) 655-2300